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| **Maths at Bowerham**  |
| Units of Maths (provisional – these may be subject to change) |
|  | **Autumn 1** | **Autumn 2**  |  **Spring 1**  | **Spring 2**  | **Summer 1** | **Summer 2**  |
| Week 1 | Place Value  | Multiplication and Division  | Place Value and Negative Numbers  | Fractions Geometry (Shape) | Place Value Measurements and Statistics  | Division  |
| Week 2 | Addition and Subtraction  | Fractions  |
| Week 3 | Addition and Subtraction  | Fractions  | Multiplication  | Measurement (Volume) | Percentages  |
| Week 4 | Multiplication and Area Time  | Measures (Length, Mass and Capacity)  | Statistics  | Geometry  | Statistics  |
| Week 5 | Statistics Geometry (Angles)  | Geometry  | Problem Solving including Bar Modelling  | Addition and Subtraction  | Measurement  |
| Week 6 | Geometry and Measures  | Assess and Review  | Assess and Review  | Multiplication  | Assess and Review  |
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| **Topic**  | **End of Year Expectation**  |
| Number and Place Value | * Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000
* Count forwards and backwards in thousandths
* Read, write, order and compare numbers to 1,000,000 and determine the value of each digit
* Read, write, order and compare numbers with up to 3 decimal places
* Identify the value of each digit to three decimal places
* Identify, represent and estimate numbers using the number line
* Find 0.01, 0.1, 1, 10, 100, 1000 and other powers of 10 more or less than a given number
* Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000
* Round decimals with two decimal places to the nearest whole number and to one decimal place
* Multiply/divide whole numbers and decimals by 10, 100 and 1,000
* Interpret negative numbers in context, count on and back with positive and negative whole numbers, including through zero
* Describe and extend number sequences including those that involve doubling/halving or multiplying/dividing by 10 and where the step size is a decimal
* Read Roman numerals to 1,000 (M); recognise years written as such
* Solve number and practical problems that involve all of the above
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| Addition and Subtraction | * Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)
* Select a mental strategy appropriate for the numbers involved in the calculation
* Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)
* Derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)
* Add and subtract numbers mentally with increasingly large numbers and decimals to two decimal places
* Add and subtract whole numbers with more than 4 digits and decimals with up to two decimal places, including using formal written methods (columnar addition and subtraction)
* Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
* Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
* Solve addition and subtraction problems involving missing numbers
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| Multiplication and Division | * Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)
* Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
* Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers
* Establish whether a number up to 100 is prime and recall prime numbers up to 19
* Recognise and use square ( 2 ) and cube (3 ) numbers, and notation
* Use partitioning to double or halve any number, including decimals to two decimal places
* Multiply and divide numbers mentally drawing upon known facts
* Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes
* Multiply numbers up to 4 digits by a one- or twodigit number using a formal written method, including long multiplication for two-digit numbers
* Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context
* Use estimation/inverse to check answers to calculations; determine, in the context of a problem, an appropriate degree of accuracy
* Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
* Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates
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| Number – Fractions | * Recognise mixed numbers and improper fractions and convert from one form to the other
* Read and write decimal numbers as fractions (e.g. 0.71 = 𝟕𝟏/𝟏𝟎𝟎 )
* Compare and order fractions whose denominators are all multiples of the same number (including on a number line)
* Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
* Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
* Add and subtract fractions with denominators that are the same and that are multiples of the same number (using diagrams)
* Write statements > 1 as a mixed number (e.g. 𝟐/𝟓 + 𝟒 **/5** = 𝟔/𝟓 =1 𝟏/𝟓 )
* Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
* Recognise the per cent symbol (%) and understand that per cent relates to ‘number of parts per hundred’, and write percentages as a fraction with denominator 100, and as a decimal
* Solve problems involving fractions and decimals to three places
* Solve problems which require knowing percentage and decimal equivalents of 𝟏 𝟐 , 𝟏 𝟒 , 𝟏 𝟓 , 𝟐 𝟓 , 𝟒 𝟓 and fractions with a denominator of a multiple of 10 or 25
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| Geometry – Properties of Shapes | * Distinguish between regular and irregular polygons based on reasoning about equal sides and angles
* Use the properties of rectangles to deduce related facts and find missing lengths and angles
* Identify 3-D shapes, including cubes and other cuboids, from 2-D representations
* Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
* Draw given angles, and measure them in degrees (°)
* Identify: - angles at a point and one whole turn (total 360°) - angles at a point on a straight line and half a turn (total 180°) - other multiples of 90°
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| Geometry – Position and Direction | * Describe positions on the first quadrant of a coordinate grid
* Plot specified points and complete shapes
* Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed
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| Statistics  | * Complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes)
* Complete, read and interpret information in tables and timetables
* Solve comparison, sum and difference problems using information presented in all types of graph including a line graph
* Calculate and interpret the mode, median and range
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| Measurement  | * Use, read and write standard units of length and mass
* Estimate (and calculate) volume ((e.g., using 1 cm3 blocks to build cuboids (including cubes)) and capacity (e.g. using water)
* Understand the difference between liquid volume and solid volume
* Continue to order temperatures including those below 0°C
* Convert between different units of metric measure
* Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
* Measure/calculate the perimeter of composite rectilinear shapes
* Calculate and compare the area of rectangle, use standard units square centimetres (cm2 ) and square metres (m2 )
* Continue to read, write and convert time between analogue and digital 12 and 24-hour clocks
* Solve problems involving converting between units of time
* Use all four operations to solve problems involving measure using decimal notation, including scaling
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